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*Illustr.*: Cooke, *Mycog.* f. 109; Grev. 3. pl. 44. f. 225;  
*Jour. Linn. Soc. Bot.* 31. pl. 16. f. 19.

Plants sessile or short stipitate, cupulate or urceolate, 2-4 cm. diam.; hymenium creamy-white when fresh becoming brown on drying; cup clothed externally with rufous brown hairs which are obtuse, up to 4-5-septate, scarcely constricted at the septa, rather thin walled, up to  $350\mu$  long, rarely longer; stem when present stout, more or less longitudinally plicate and sometimes lacunose below. Asci clavate-cylindrical, apex rounded,  $300-325 \times 15\mu$ ; spores uniseriate, hyaline, continuous, granular-roughened, elliptical to elliptical-oblong,  $25-33 \times 10-12\mu$  (majority  $28-32\mu$ ); paraphyses cylindrical, apex slightly thickened, septate, brown.

On rich woodland soil, burnt soil, or much decayed wood, Aug.-Oct. Pennsylvania and Delaware.

I have not seen this species in the fresh state and so can give no more information about it than can be gotten from herbarium material. It seems to agree in size, form, color, and certainly in the structure of the excipulum, with *M. fusicarpa*, the chief differences being found in the somewhat longer external hairs, and the shape and size of the spores. The latter are relatively much broader being elliptical or oblong-elliptical with rounded ends, rather than fusiform, and average  $28-32\mu$  long as against  $36-41\mu$  in *M. fusicarpa*. The largest spores of *M. semitosta* barely surpass the smallest ones of *M. fusicarpa*.

Dr. Michener's collections seem to be somewhat immature, but Mr. Ellis's material seems to be better developed. The spores present agree perfectly in all the specimens. In the type of *M. semitosta* they measure  $25-33 \times 10-12\mu$ , while in that of *P. hainesii* they are  $30-31 \times 10-12\mu$ .

Material examined: PENNSYLVANIA: Dr. Michener, n. 3936; West Chester, Haines and Jefferies.

DELAWARE: Wilmington, A. Commons.

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## NOTES FROM MYCOLOGICAL LITERATURE XVII.

W. A. KELLERMAN.

SYMBIOSIS IN THE GENUS *LOLIUM*, E. M. FREEMAN, Minn. Bot. Studies, 3:329-334, Oct. 18, 1904, admits that it cannot be affirmed without reservation that the entire life-history of *L. temulentum* is understood, but it can be affirmed that the yearly life-cycle is known, and that the parasite can live on indefinitely,

infecting generation after generation of *Lolium* plants without spore generation. Professor Freeman also says that the nature of the fungus still remains an open question. "I have previously enumerated the objections to the assignment of this fungus to the ergot-forming parasites and it certainly has little or no resemblances to the Uredineae. Nor has it any similarity to the Hyphomycetes and Pyrenomycetes of molded grains. The Ustilagineae seem to furnish the closest affinities."

TERMINOLOGY OF THE SPORE-STRUCTURES IN THE UREDINEALES, J. C. Arthur, Bot. Gaz. 39: 219-222, March 1905, contains this suggestion relative to proposed designation: "The new terms consist of four words, with their derivatives, one for each of the four stages of uredineal fungi. For the sorus of the initial stage, usually designated by a cipher, and called spermogonium, pycnidium, etc., I propose *pycnium*; derivatives *pycnial*, *pycniospores*, etc. For the sorus of the first spore-stage, usually designated by the Roman numeral I, and called aecidium, roestelia, peridermium, etc., I propose *aecium*; derivatives *aecial*, *aeciospore*, etc. For the sorus of the second spore-stage, usually designated by the Roman numeral II, and called uredosorus, etc., I propose *uredinium* (uredo); derivatives *uredinial*, *urediniospore* or if preferred *uredospore*, etc. For the sorus of the third spore-stage, usually designated by the Roman numeral III, and called teleutosorus, I propose *telium*; derivatives *telial*, *teliospores*, etc."

THE COMMON *ITHPHALLUS IMPUDICUS*, generally considered to be a saprophyte only, has been found to be the cause of a destructive root rot of the vine in Hungary. According to the account given by Istvanffi (Ann. Inst. Cent. Ampelologique Roy. Hongrois 3: 1-55, 1904) the subterranean part of the stem is entwined by a network of the characteristic cord-like strands of mycelium of this fungus. From these, branches are sent into the interior of the stem. Small roots are totally destroyed by strands which penetrate them lengthwise, destroying all the tissues and leaving only the thin decaying cortex. In the older roots the cortex and phloem are totally destroyed, leaving only a mass of debris. The wood cylinder is last attacked, but this also is finally destroyed, leaving only scattered remnants of the vessels. [H. Hasselbring in Botanical Gazette.]

SEXUAL REPRODUCTION IN THE RUSTS BY A. H. CHRISTMAN, Botanical Gazette, April 1905, can not be sufficiently indicated in a word but possibly the following quotation may show the trend of the article: "Maire's conception that the nuclear fusion in the teleutospore is a *mixis*, was developed on the basis of the belief that no real cell fusion occurs in the life cycle of the rusts. It is at least a fair presumption that while no nuclear fusion occurs in the aecidium, the fusion of gamete cells described

above presents all the essential features of sexual conjugations as found in other plants and animals. Superficially considered, Raciborski's conception that the sexual union may be regarded as consisting of two phases, cell fusion and nuclear fusion, might seem to fit the conditions found in the rusts. I am inclined, however, to accept Blackman's conclusion that the fusion in the teleutospore has wholly to do with the reduction of the number of chromosomes."

OTTO JAAP, FUNGI SELECTI EXSICCATI, Serie 4, Ausgegeben im Oktober 1904, contains: (76) *Taphridium umbelliferarum* f. *peucedani*, (77) *Taphria coerulescens*, (78) *Exoascus alni incanae*, (79) *Mycosphaerella salicicola* f. *amygdalinae*, (80) *Ophiognomonia padi* Jaap n. sp. on *Prunus padus*, (81) *Diaporthe valida*, (82) *Aporia Jaapii* Rehm n. sp. on *Aspidium squamulosum*, (83) *Naevia Rehmii* Jaap n. sp. on *Juncus anceps*, (84) *Briardia purpurascens*, (85) *Lachnum arundinis*, (86) *Desmazierella acicola*, (87) *Mitruula pusilla*, (88) *Urocystis Fischeri*, (89) *Setchellia punctiformis*, (90) *Melampsora amygdalinae*, (91) *Uromyces ranunculi-festuae*, (92) *Uromyces scirpi* f. *hippuridis-scirpi*, (93) *Uromyces scirpi* f. *glaucis-scirpi*, (94) *Puccinia angelicae-bistortae*, (95) *Rostrupia clymi*, (96) *Cyphella gregaria*, (97) *Polyporus brumalis*, (98) *Diplodina obionis* Jaap n. sp. on *Obione portulacoides*, (99) *Ovularia vossiana*, (100) *Didymaria linariae*; and Supplement: 1. *Magnusiella potentillae*, 2. *Nectria episphaeria*, 3. *Septoria nigerrima*.

THE EFFECT OF DIFFERENT SOILS on the Development of the Carnation Rust is discussed by John L. Sheldon of the West Virginia Agricultural Experiment Station, see Bot. Gaz. Sept. 1905. The experiments reported and conclusions drawn are interesting, but since they are of little or no taxonomic significance they must be passed without further comment — with the remark, however, that he found that the soils favorable for the host were also favorable for the Rust.

ROLAND THAXTER, A NEW AMERICAN SPECIES OF *WYNNEA*, Botanical Gazette, April 1905. It was found by the author in 1888, in Tennessee, growing on the ground in rich woods, in a single locality, where several clusters of its long bluntly pointed, rabbit-ear-shaped, dark brown apothecia were scattered in a limited space, each cluster borne on a well defined stout stem, emerging directly from the humus. The same thing was collected also in Ohio. Dr. Thaxter named the species *Wynnea americana*, illustrating the same by two plates — one showing the plant natural size and the other showing asci, spores and other details.

MINNESOTA HELVELLINEAE, DAISY S. HONE, Minnesota Botanical Studies, 3: 309-321, Pl. XLVIII-LII, Oct. 18, 1904, is a list of 14 species, with newly written descriptions, all splendidly illustrated on heliotype plates.

OBSERVATIONS ON *PHYSALACRIA INFLATA* (Schw.) PECK, by Jessie M. Polley, Minnesota Botanical Studies, 3: 323-8, Pl. LIII, Oct. 18, 1904, treats of the rare and interesting fungus that was named *Leotia inflata* by Schweinitz in 1822. A new study of the plant from material collected at Detroit, Minnesota was made by Miss Polley.

J. C. ARTHUR IN LEGUMINOUS RUSTS FROM MEXICO (collected by E. W. D. Holway), published in the June No. of the Botanical Gazette, 1905, enumerates 37 species. Of these the following are new species: *Uromyces rugosa*, *U. montanus*, *U. cologaniae*, *U. clitoriae*, *U. bauhiniicola*, *Calliospora holwayi*, *C. farlowii*, *C. diphysae*, *Uredo aeschynomenis*, *Revenelia lysilomae*, *R. gracilis*, *R. pithecolobii*, *R. inconspicua*, and *R. pulcherrima*. A new genus of Rusts, namely, *CALLIOSPORA* is proposed, with the following diagnosis: Teleutosori arising from beneath the epidermis, soon naked; teleutospores 2-celled by transverse partition, wall colored, with an external layer which swells in water; germ pores 2 in each cell, lateral. *Aecidium* and *uredo* wanting. *Spermogonia* arising from beneath the cuticle, conical.

CONTRIBUTIONS TO THE BIOLOGY OF RHIZOBIA, IV: two coast Rhizobia of Vancouver Island, B. C., by Albert Schneider is published in the Botanical Gazette for August 1905, and relates to forms found in the beach vetch, *Lathyrus maritimus* Bigel., and the beach clover, *Trifolium heterodon* Gray.

THE V. CONTRIBUTION TO THE BIOLOGY OF RHIZOBIA by Albert Schneider, published in the Botanical Gazette for October 1905, deals with the isolation and cultivation of Rhizobia in artificial media.

RUSTS ON COMPOSITAE FROM MEXICO is an important contribution to the mycology of that region, by J. C. Arthur in the Botanical Gazette for September 1905. They are mostly the collections of Prof. E. W. D. Holway, the list containing 54 species. The new species described are *Coleosporium dahliae*, *C. steviae*, *Dietelia eupatorii*, *D. vernoniae*, *Uromyces senecionicola*, *Puccinia senecionicola*, *P. globulifera*, *P. gymnomiae*, *P. caleae*, *P. axinophylli*, *P. noccae*, *P. jaliscana*, *P. diaziana*, *P. semi-insculpta*, *P. egregia*, *P. zaluzaniae*, *P. concinna*, and *P. paupercula*.

FERTILIZATION IN THE SAPROLEGNIALES, by B. M. Davis, in the Botanical Gazette, January, 1905, is mainly a critical discussion of Trow's reaffirmed conviction that a sexual act is present in the water molds, etc.; with then the remark that much more work must be done both on the Saprolegniales and Peronosporales before some of the points suggested by Trow's paper will be established.

THE POLYPORACEAE OF NORTH AMERICA — XII. A synopsis of the white and bright-colored species. Bulletin of the Torrey Botanical Club, 32:469-493, September 1902. "The classification here adopted is acknowledged to be imperfect and artificial, but it is hoped that it will lead to something better when our knowledge of the plants treated is more complete." Synopses are given as in previous installments and the treatment is similar in other respects. The new genera proposed are: *Irciporopus* (type *Irpex mollis* B. & C.); *Dendrophagus* (type *Polyporus colossus* Fr.); *Rigidiporus* (type *Polyporus micromegas* Mont.); *Earliella* (type *Earliella cubensis* Murrill n. sp.); *Cubamyces* (type *Polyporus cubensis* Mont.); *Coriolellus* (type *Trametes sepium* Berk.); *Microporellus* (type *Polyporus dealbatus* B. & C.); *Flaviporellus* (type *Polyporus splitgerberi* Mont.); *Aurantiporus* (type *polyporus alboluteus* E. & E.); *Aurantiporus* (type *Polyporus pilotae* Schw.); *Pycnoporellus* (type *Polyporus fibrillosus* Karst.); and *Phaeolopsis* (type *Polyporus verae-crucis* Berk.).

FREDERICK LEROY SARGENT'S ARTICLE LICHENOLOGY FOR BEGINNERS III, published in the *Bryologist*, Sept. 1905, is illustrated by numerous figures; some of the subjects fully discussed are the chief forms of the thallus, the principal forms of apothecia, and the spores.

WHAT TO NOTE IN THE MACROSCOPIC STUDY OF LICHENS II, by Bruce Fink, published in the *Bryologist*, September 1905, is treated under the following subheads: Variation in Lichens, the Apothecium, the Disk, the Exciple, Position of the Apothecia, Stipes and Podetia, Rhizoids and Cilia, Some other structures and Conclusion.

A NOTE REGARDING THE DISCHARGE OF SPORES OF *PLEUROTUS OSTREATUS*, by C. C. Harmer, is given in the *Torrey* for August 1905. He says that a large plant left in the room one night, exposed to strong morning sunlight caused the spores to arise from the plant like tiny spirals of smoke or steam, to the height of two or three feet, making a very strange sight.

THE GENUS *CORTINARIUS* A PRELIMINARY STUDY, by Calvin Henry Kauffman, in the Bulletin of the Torrey Botanical Club, June, 1905, is a partial monograph based on thorough study extending through a period of three years. A key is given for the *Cortinarii* in the vicinity of Ithaca. The subheads of the article are as follows: Introduction, Historical, General considerations, Generic description, Key to Subgenera, Structure of the pileus and stem, Gills, Spores, Habitat, Identification, and Species. Under the latter a key is given and seven new species described.

A NEW POLYPOROID GENUS FROM SOUTH AMERICA (called *PHYLLOPORIA*) by William A. Murrill, is noted in *Torrey* for

September 1904. It is the only species known which occurs parasitic on leaves. Looked at from above, the author says in speaking of the leaves, the host appears to be attacked by a leaf-parasite and it is quite surprising to find on the lower surface the sporophores of one of the Polyporaceae. The pileus is 5-8 mm. in diameter and 0.2-1 mm, thick.

TYCHO VESTERGREN, MONOGRAPHIA DER AUF DER LEGUMINOSEN-GATTUNG BAUHINIA VORKOMMENDEN UROMYCES-ARTEN, in Arkiv för Botanik, K. Svenska Vetenskaps-akademien I Stockholm, Band 4, No. 15, is an important monograph, the sub-heads being Morphologische Uebersicht, Verwandtschaftsverhältnisse, Uebersicht der Species and Diagnosen der species. The spores of 17 species included in the paper, each fully described, are illustrated on two lithographic plates. Eleven of the species are new. Most of the species are from South America (one only occurs in Europe) but a few also have been found in Mexico and the West Indies.

A NEW GENUS OF ASCOMYCETOUS FUNGI by Nathaniel Llyon Gardner forms vol. 2, No. 6, pp. 169-18, pl. 18, University of California publications, Botany, issued July 27, 1905. It is based on *Sphaeria* (*Hypocrea*) *setchellii* Hark., a species that was published some years ago. The generic name proposed is *Nigrosphaeria*; its scant mycelium penetrates the subhymenial tissues of the host—in the case investigated this being the saprophytic *Pseudohydnotria* *Harknessii*, which grows in sandy soil. Both host and parasite are ascomycetous fungi.

THE POLYPORACEAE OF NORTH AMERICA—X. AGARICUS, LENZITES, CERRENA AND FAVOLUS, by William Alphonso Murrill, Bulletin of the Torrey Botanical Club, 32: 83-103, February 1905, treats of plants with variable daedaleoid or lamelloid hymenium and light-colored context and spores. The author says they recognize none of the ordinary specific or even generic limitations of the group and that if they are amenable to ordinary methods of cultivation, they would surpass *Oenothera* in supplying most excellent examples of mutation. The treatment of the subject is similar to that in previous installments and needs no further elucidation. It might be remarked that it is not altogether unappalling to some botanists to see the name *Agaricus* transferred to our common *Daedalea quercina*—and whether Mr. Murrill's nomenclature and many new genera of the Polyporaceae will be accepted by the older workers remains to be seen.

ORGANISMS ON THE SURFACE OF GRAIN WITH SPECIAL REFERENCE TO *BACILLUS COLI*, by Haven Metcalf, Science, N. S., 22: 439-441, 6 Oct. 1905, is a preliminary note on work done in the Piedmont region and the Rice-belt of South Carolina, in 1903-4. Some of the conclusions are as follows: An immense but

variable number and variety of micro-organisms were normally present on the surface of flowers, fruits and leaves. These were different in different localities, and different in successive years in the same locality, and showed no constant association with the host plants studied. . . . The most constantly present organisms were certain yeasts; in greatest number and variety on the peach, asparagus and iris; but yet characteristically present on the cereals. . . . Bacteria giving the standard reactions of the colon group were found in thirteen out of sixteen rice fields examined, five of the eight wheat fields and all of the oat fields. All three peach orchards and both asparagus patches exhibited coli forms in both flower and fruit; but none were found on either flower or fruit of *Iris verna*.

A PRELIMINARY NOTE ON CLOVER DISEASES IN TENNESSEE by Samuel M. Bain and Samuel H. Essary, *Science*, N. S., 22: 503, October 20, 1905, refers to the prevalence, greater or less, of *Uromyces trifolii*, *Pseudopeziza trifolii*, and *Macrosporium sarcinaeforme* but the author says: The most destructive disease thus far found is what appears to be an undescribed species of COLLETOTRICHUM. In its general appearance this disease very closely simulates the anthracnose of clover (*Stengelbrenner*), described by Mehner and Kirchner and by the latter attributed to the attacks of *Gloeosporium caulivorum* n. sp.

TWO CONIDIA-BEARING FUNGI, CUNNINGHAMELLA AND THAMNOCEPHALIS N. GEN., by A. F. Blakeslee, (with plate), is the first article in the September No. of the Botanical Gazette, 1905. The first species discussed is *C. echinulata* Thaxter, seldom reported, and the second is *Thamnocephalis quadrupedata*, growing in a gross dung culture on fresh sphagnum. The new genus is characterized as follows: *Thamnocephalis*. — Vegetative hyphae fine, continuous, anastomosing. Fructifications erect, consisting of a main stalk supported above the substratum by stout rhizoidal props and bearing a bushy crown of subdichotomously branched fertile hyphae terminated by sterile branches. Spores solitary, borne on the surface of spherical heads. Heads borne at the apex of short lateral stalks which arise at nodes from opposite sides of the fertile hyphae at right angles to their planes of branching.

CHROOLEPUS AUREUS A LICHEN, is what Albert Schneider maintains in the August (1905) No. of the Bulletin of the Torrey Botanical Club. Material collected at Vancouver Island presented opportunity for the study, and here is his conclusion: There seems to be little doubt that the network described represents a fungus symbiotically associated with the alga *Chroolepus aureus*. This association appears to be sufficiently constant to warrant placing this structure, heretofore classed as an alga, with the class *Lichenes*. The fungal symbiont does not appear to develop



spores or any other special structures found with the fungal symbionts of the majority of lichens.

ANNALES MYCOLOGICI, VOL. III, No. 3, JUNE, 1905, contains: Bubák, Fr., Beitrag zur Kenntniss einiger Uredineen; Rehm, Ascomycetes exs. Fasc. 34; Sydow, Mycotheca germanica Fasc. VII (No. 301-350); Rick, J., Pilze aus Rio grande do Sul; Salmon, Ernest S., The Erysiphaceae of Japan, II; Lederer, Michael, Die Flechtenflora der Umgebung von Amberg; Neue Literatur; Referate und kritische Besprechungen.

ANNALES MYCOLOGICI, VOL. III, No. 4., AUG. 1905, contains the following: McAlpine, D., A new genus of Uredineae — *Uromycladium*; Höhnelt, Franz v., Mycologische Fragmente; Vuillemin, P., Identité des genres *Meria* et *Hartigiella*; Guillaermond, A., Remarques sur la Karyokinése des Ascomycètes; Cavares, Fr., Causeries mycologiques; Neue Literatur; Referate und kritische Besprechungen.

HEDWIGIA, BAND XLIV, HEFT 6, 25 AUG. 1905, has for mycologists the four articles: P. Dietel, Über die Arten der Gattung *Phragmidium* II; P. Magnus, Über die Gattung, zu der *Rhizopodium Dicksonii* Wright gehört; Fr. Bubák und J. E. Kabat, Mykologische Beiträge III; P. Magnus, Zwei parasitische *Harpographium*-Arten und der Zusammenhang einiger *Stilbeen* mit *Ovularia* oder *Ramularia*.

HEDWIGIA, BAND XLIV, HEFT 2, 31 JAN. 1905, has the following mycological papers: P. Hennings, *Fungi amazonici* IV, a cl. Ernesto Ule collecti; Zoltan von Szabo, Über eine neue *Hyphomyceten*-Gattung; P. Dietel, Über die Arten der Gattung *Phragmidium* (Anfang).

HEDWIGIA, BAND XLIV, HEFT 3, 13 MAR. 1905, contains mycological articles, for example: P. Dietel, Über die Arten der Gattung *Phragmidium* (Schluss); Jos. Stefan, Beitrag zur Kenntniss von *Collybia racemosa* Pers.; P. Hennings, Einige schädliche parasitische Pilze auf exotischen Orchideen unserer Gewächshäuser.

THE REPORT OF THE BOTANIST OF THE CONNECTICUT AGRICULTURAL EXPERIMENT STATION for the year 1904, part IV, pp. 311-384, pl. XVIII-XXXVII, issued May 1905, is a discussion by G. P. Clinton under three heads as follows (1) Notes on Fungous Diseases, etc., for 1904; (2) Downy Mildew or Blight, *Peronosporaspora cubensis* (B. & C.) Clint.; (3) Downy Mildew, or Blight, *Phytophthora infestans* (Mont.) DeBy. of Potato. Attention is called especially to the two last articles which are exhaustive. Dr. Clinton takes up the history, systematic classification, life cycle, spraying experiments and conclusions; also for the Melon blight a bibliographical list of all the more important articles on the subject.